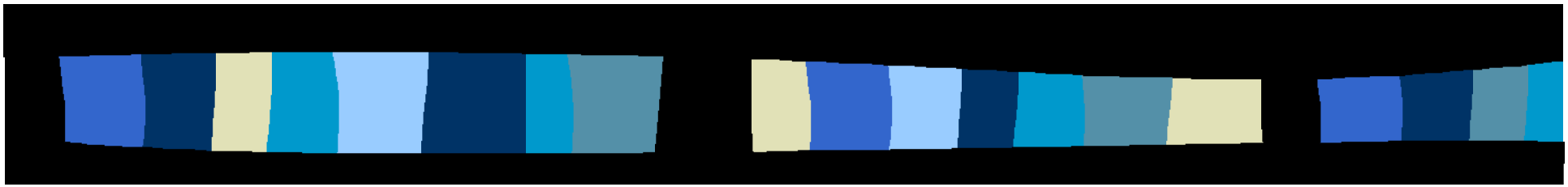
US Gulf Coast to California Pipeline Feasibility Study



Committee Workshop

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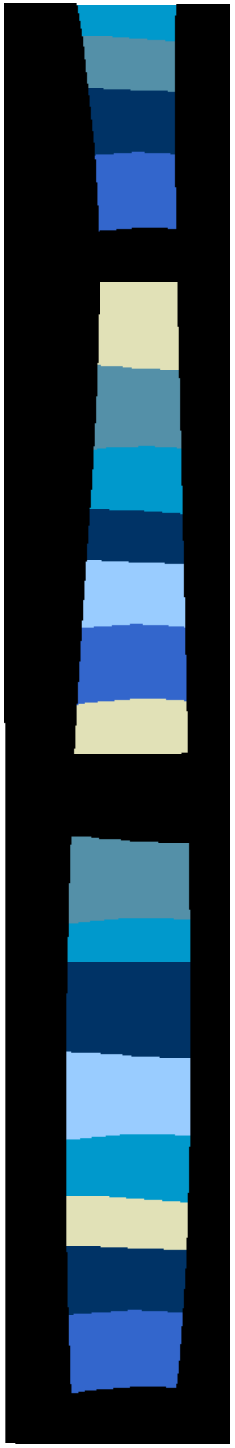
Background

- AB 2098
  - Directed the Energy Commission to study the feasibility of financing, constructing, and maintaining a new pipeline, or utilizing or expanding the capacity of existing pipelines, to transport motor vehicle fuel or its components from the Gulf Coast to California
- Interliance hired by the Energy Commission to conduct pipeline analysis
- Drew Laughlin hired to conduct marine tanker and US Gulf Coast supply analysis

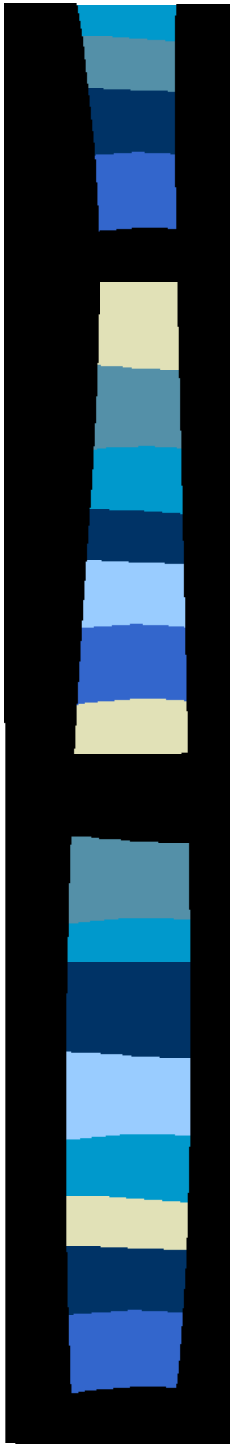
Background - Contractor Reports

- Interliance - *Gulf Coast to California Pipeline Feasibility Study*
- Drew Laughlin - *Marine Product Tanker Fundamentals, Economics & Outlook*
- Drew Laughlin - *Supply Potential for Petroleum Products in the US Gulf Coast*



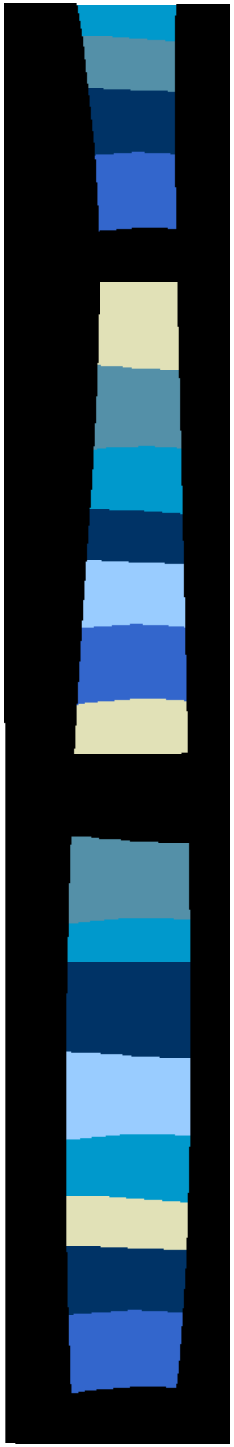
Pipeline Fundamentals

- Most economical means of transporting petroleum products from points of supply to demand regions
- New pipeline costs vary by pipeline size
  - 40 percent labor
  - 27 percent engineering & overhead
  - 23 percent construction
  - 10 percent land acquisition
  - Average cost per mile, $1.5 million
- Projects usually require a 10 to 20 year revenue stream
  - Revenues generated by pipeline tariff



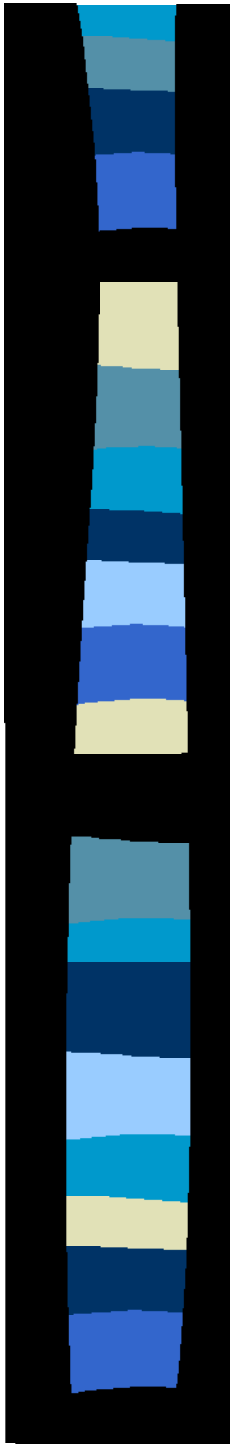
Pipeline Overview - Southwest

- California has network of product pipelines that efficiently transport gasoline, jet and diesel fuels to over 60 terminals located throughout the State
- Kinder Morgan (KM) is the only common carrier
- Several refiners have proprietary pipeline systems and/or terminals
- KM pipelines connect California refiners with:
  - Reno
  - Las Vegas
  - Phoenix



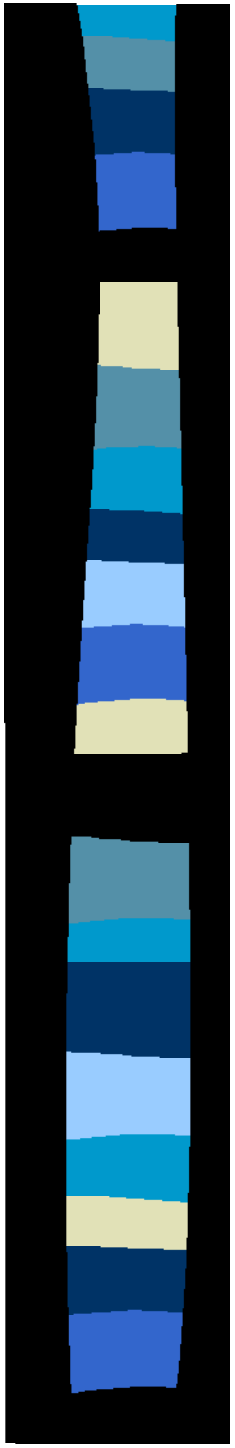
Pipeline Overview - Nevada

- Nevada receives the majority of its petroleum products from pipelines originating in California
- Reno - 36 TBD petroleum products
  - Gasoline 17 TBD, diesel 13 TBD, jet fuel 6 TBD
- Las Vegas - 109 TBD petroleum products
  - Gasoline 44 TBD, diesel 32 TBD, jet fuel 33 TBD



Pipeline Overview - Arizona

- Arizona receives 60 percent of its petroleum products from pipelines originating in Calif.
- The rest from a pipeline originating in El Paso, Texas
- Phoenix/Tucson from CA - 126 TBD products
  - Gasoline 64 TBD, diesel 31 TBD, jet fuel 31 TBD
- Phoenix/Tucson from TX - 87 TBD products
  - Gasoline 68 TBD, diesel 11 TBD, jet fuel 8 TBD

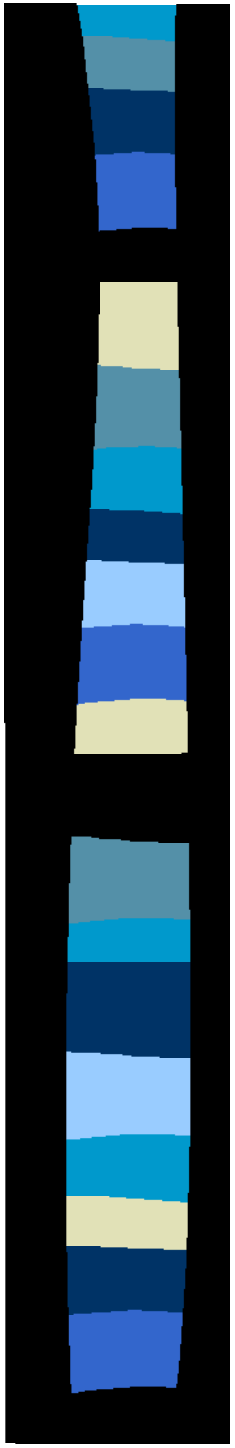


Pipeline Overview - Longhorn

- A new product pipeline is expected to start operations between Houston and El Paso, Texas 2nd or 3rd quarter of 2002
- Initial capacity expected to be 70 to 75 TBD
- Ultimate capacity 225 TBD
- Project was initiated in 1994
- Significant construction delays have resulted from lawsuits
- Mitigation projects undertaken to address environmental concerns associated with groundwater aquifers

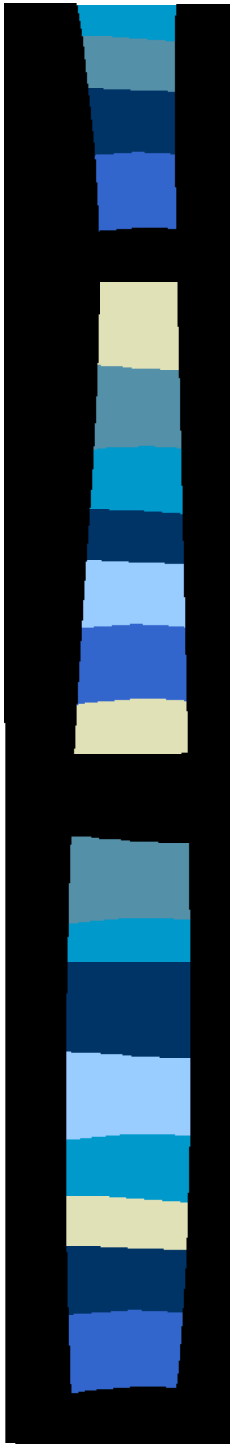
Pipeline Overview - Constraints

- Pipeline capacity between El Paso, Texas and Phoenix/Tucson (East Line) is full
- Demand in Arizona is increasing at a rate of 2.5 to 3 percent per year
- All future demand in Phoenix/Tucson must be met from shipments originating in California
- The West Line has spare capacity to accommodate additional shipments over the near-term



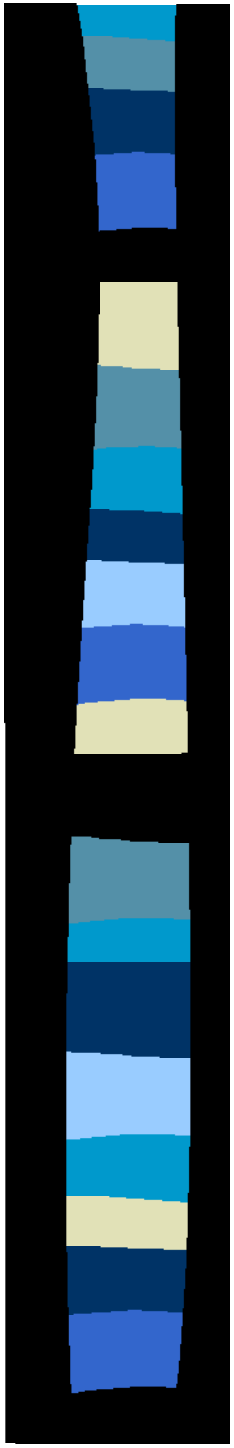
New Pipeline

- Interliance estimated costs and timing associated with a new petroleum product pipeline between Texas and California
- Costs
  - $800 million for 12-inch diameter line
  - $1.6 billion for 24-inch diameter line
- Timing - 4 years
  - 6 months engineering and design
  - 18 months permitting & material procurement
  - 24 months construction and testing
- Capacity
  - 150 TBD for 24 inch line
  - 50 TBD for 12 inch line



New Pipeline - Operational Options

- Pipeline used as Strategic Fuel Reserve (SFR)
  - 4 million barrels line fill
  - Use during unplanned refinery outages
- Pipeline used as source of product for SFR
  - Source of product to initially fill SFR
  - Replenish SFR after barrels
- Pipeline delivers products to California on a routine basis
  - Continuous operation US Gulf Coast to California product movement



New Pipeline - Operational Issues

- Pipeline as Strategic Fuel Reserve (SFR)
  - Intermittent operation is problematic
    - shelf life of product limited
    - interface problems if multiple grades or products
    - difficult to detect and isolate leaks
  - More costly than traditional SFR
    - $1.6 billion vs. $100 million
  - Less flexible than SFR
    - one location vs. multiple locations
    - single re-supply point vs. multiple re-supply options
- Pipeline should not be constructed to operate as a Strategic Fuel Reserve
  - Impractical and costly option

New Pipeline - Operational Issues

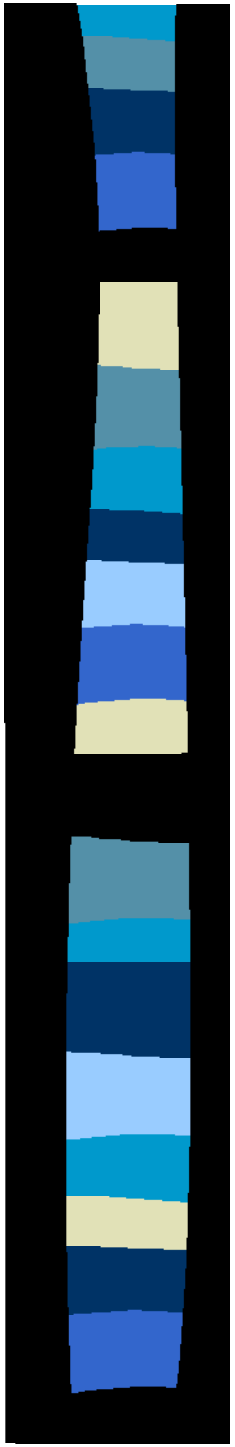
- Pipeline used as source of product for SFR
  - Intermittent operation is problematic
  - More costly than other supply options
    - $800 million vs. $17 - $42 million
- Pipeline should not be constructed to operate as a source of product for SFR
  - Impractical and costly option

New Pipeline - Operational Issues

- Pipeline delivers products to California on routine basis
- Three primary factors need to be evaluated to determine if the construction and operation of such a pipeline is a feasible and economically viable project
  - Increasing California demand requiring imports
  - Adequacy of US Gulf Coast supply
  - Marine transportation costs & pipeline tariff

New Pipeline - California Demand

- Will California need additional imports of petroleum products?
  - Gasoline demand forecasted to increase 1.6 percent per year
  - Refinery capacity expected to decline 5 percent following phaseout of MTBE
  - Imports of additional gasoline and blending components in the range of 56 - 100 TBD
- Following the phaseout of MTBE, imports could be sufficient to justify construction of a pipeline between Texas and California IF adequate surplus supplies are available



New Pipeline - USGC Supply

- Will there be adequate supplies of gasoline and blending components available to supply a new pipeline?
  - Few USGC refiners are able to produce CARB RFG - will be fewer after MTBE phaseout
  - Alkylate is a desirable blending component, but “surplus” supplies and appropriate quality are expected to be scarce
  - Gasoline and blending components from other supply centers available at the right price
  - Marine costs from other areas are less than freight rates from the US Gulf Coast
- Adequate supplies of sufficient quality not available to merit construction of pipeline

New Pipeline - Marine Shipping

- Will shipping rates from the USGC be less than the new pipeline tariff?
  - US Jones Act requires domestic ship be used to transport products from one US port to another
  - Fleet is declining
    - 64 product tankers in fleet, 18 ships retired by 2006
  - 100 TBD would require 16 ships
  - MTBE phaseout will not free up sufficient shipping capacity
  - Shipping rates range from 10 - 25 cents per gallon
  - These rates expected to increase over near-term
- Reasonable to assume that the tariff structure could be less than marine rates

Expanded Pipeline Capacity

- Indirect supply potential for California
- East Line expansion
  - Pipeline between El Paso and Tucson
    - El Paso refinery capacity & capability
    - Arizona gasoline specifications
    - Regional demand increases
- New Las Vegas line
  - Pipeline between Phoenix and Las Vegas

Expanded Capacity - East Line

- Line between El Paso and Tucson is full
- Additional demand for Phoenix/Tucson must be supplied from the west (California)
- Longhorn pipeline assumed to be operational this summer - 75 TBD additional supply to El Paso
- Expansion of East Line would provide the potential for California refiners to send less gasoline to Arizona
- Many of the components used to create AZ gasoline could be used for CARB production

Expanded Capacity - East Line

- Issues that impact East Line supply potential
  - El Paso refinery capacity & capability
    - 6 refineries in Western Texas and New Mexico
    - Some portion of the refinery capacity in this region is expected to decline or find alternative markets outside the region
    - capacity declines will **reduce** availability of Longhorn supplies for East Line expansion
    - has not been quantified as part of this study

Expanded Capacity - East Line

- Issues that impact East Line supply potential
  - Arizona gasoline specifications
    - AZ specifications are similar to Federal & CARB RFG
    - ethanol required during the winter months
    - MTBE in AZ scheduled to phase out 6 months after CA
    - loss of MTBE will decrease supply capability
  - Adoption of more stringent gasoline specifications for the Phoenix market would diminish the potential for East Line expansion to provide indirect supplies of gasoline and blending components for California

Expanded Capacity - East Line

- Issues that impact East Line supply potential
  - Regional demand increases
    - Gasoline demand in West. Texas, New Mexico and Arizona is expected to continue growing rate of population growth, at least 2.5 percent per year
    - A portion of the shipments through the Longhorn Pipeline is expected to be a source of new supply to help meet a portion of this future demand in the West Texas and New Mexico markets

Expanded Capacity - Las Vegas

- New pipeline from Phoenix to Las Vegas
  - Demand in Las Vegas is increasing at an annual rate of over 2 percent
  - Additional demand over the forecast period will have to be met from supplies originating in Southern California
  - Gasoline specifications for the Las Vegas region are less stringent when compared to the standards for Phoenix and California. Some gasoline components that are difficult to blend in California gasoline are used to create complying gasoline for the Las Vegas markets
  - Ability to supply Las Vegas from sources in Texas would enable California refiners the option to reduce deliveries of gasoline, indirectly increasing supplies of various blending components that could be used to produce California reformulated gasoline

Staff Recommendations

- Energy Commission should support the completion of the Longhorn pipeline to El Paso as a first step to enabling increased supply of gasoline for California
- Energy Commission should support expansion of the East Line capacity from El Paso to Phoenix/Tucson
- Energy Commission should also support the construction of a new product pipeline to Las Vegas from the east to enable petroleum product deliveries from Texas

Staff Recommendations

- Further analysis should be conducted to better quantify the potential loss of refinery production capacity in Western Texas and New Mexico and the implications of such developments on the potential to indirectly increase gasoline supplies for California
- Further analysis should also be conducted to assess the impacts of Arizona adopting stricter fuel specifications (like Phase 3 CaRFG) and the implications on the potential to indirectly increase gasoline supplies for California

Staff Recommendations

- California should not become an investor in a pipeline expansion project between El Paso and Phoenix or a new pipeline project between Arizona and Las Vegas
  - There appear to be a sufficient number of interested industry participants willing to provide capital to finance such a project

Staff Recommendations

- Federal Government agencies who have lead permit authority for interstate petroleum pipeline projects (such as the Dept. of Trans. and US EPA) should examine the feasibility of streamlining their review and approval process to reduce the time required to issue the necessary permits
  - Unreasonably lengthy permit processes are one of the main factors that endanger successful initiation of necessary energy projects